REMARKS

By this response, claims 3, 11 and 19 are cancelled, and claims 4, 6, 8, 12-16, 20, 22, 24, 27-29, 31 and 32 are amended. Thus, claims 4, 6, 8-10, 12-16, 20, 22, and 24-32 are active for examination. Claims 12-14 are rewritten in independent form to include every limitation of claim 11. Adequate descriptive support for the amendment can be found in the specification. No new matter has been introduced.

The Office Action dated January 16, 2003 allowed claims 9, 10, 25 and 26, and rejected claims 3-4, 6, 8, 11, 14, 19-20, 22, 24, 27 and 30 under 35 U.S.C. §103(a) as being unpatentable over January (U.S. Patent No. 5,675,515). The Office Action objected to claims 9, 10, 12, 13, 15, 16, 15, 26, 28, 29, 31 and 32 for depending from a rejected base claim, but the claims would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims. The Examiner also indicated that an Information Disclosure Statement filed on August 8, 2002 was insufficient.

The Examiner is thanked to have a telephone discussion to clarify the status of the Information Disclosure Statement of August 8, 2002, as Applicants did not file an Information Disclosure Statement on that specific date. It was determined that the references or list was filed as a Third-Party Submission in Published Application, not by Applicants.

The rejection and objection are respectfully traversed in light of the remarks and amendment presented herein.

CLAIMS 12 AND 13 ARE NOW ALLOWABLE

Claims 12 and 13 were objected to for depending from a rejected base claim. The

Examiner indicated that the claims would be allowable if rewritten in independent form to

include all of the limitations of the base claim and any intervening claim.

By this amendment, the claims are amended as requested by the Examiner. Therefore, the

claims are now allowable.

THE REJECTION OF CLAIMS 3, 11 and 19 IS NOW MOOT

Claims 3, 8 and 9 were rejected under 35 U.S.C. §103(a) as being unpatentable over

January. By this amendment, the claims are cancelled without prejudice. The rejection of claims

3, 8 and 19 is now moot.

THE OBVIOUSNESS REJECTION OF CLAIMS 4, 6, 8, 14, 20, 22, 24, 27 AND 30 IS TRAVERSED

Claims 4, 6, 8, 14, 20, 22, 24, 27 and 30 were rejected under 35 U.S.C. §103(a) as being

unpatentable over January. The rejection is respectfully traversed because the reference cannot

support a prima facie case of obviousness.

A *prima facie* case of obviousness under 35 U.S.C. § 103 requires three criteria be met.

First, the prior art reference (or references when combined) must teach or suggest all the claim

limitations. Second, there must be some suggestion or motivation in the references themselves to

modify the reference or to combine reference teachings. Third, there must be a reasonable

expectation of success for the modification or combination of references. Further, the teaching

or suggestion to make the modification or combination of prior art and the reasonable

expectation of success must both be found in the prior art, and not based on Applicant's

disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). The teachings,

motivations or suggestions to combine references must be based on objective evidence of record and cannot be resolved on subjective belief and unknown authority. *In re Lee,* 277 F.3d 1338, 61 USPQ2d 1430 (Fed. Cir. 2002). Additionally, there must be particular finding as to the specific understanding or principle within the knowledge of a skilled artisan that would have motivated one with no knowledge to the claimed invention to combine or modify references. *In re Kotzab,* 217 F.3d 1365, 55 U.S.P.Q.2d 1313 (Fed. Cir. 2000). The cited references, however, do not meet these requirements.

(1)   Claims 4 and 20 are Patentable over January

Claim 4, as amended, recites "determining an alignment status by comparing the length of the calculated front wheel track to a specified range for the front wheel track and comparing the length of the calculated rear wheel track to a specified range for the rear wheel track." As pointed out in Applicants' previous response, January uses line segments 94 and 95 to calculate a track width difference **angle** to determine whether the width for the front axle is the same as that of the rear axle. Thus, January is different from the method of claim 4 in that January uses **angles**, not comparison of **distances** of wheel tracks as required by claim 4, to determine an alignment status.

In response to Applicants' arguments in traversing the previous rejection, the Examiner asserted that "claim 4 does not explicitly disclose that the calculated tracks are distances as asserted by applicant." By this Amendment, claim 4 is amended to clarify that the comparison is made between the lengths of wheel tracks and specified ranges. Adequate support for the amendment can be found in, for example, page 7, line 9 to page 8, line 7, in which it was described that "the front wheel track 150 **extends** between the two wheel positions...and the rear wheel track 152 **extends** between the two wheel positions," (page 7, lns. 11-13) [emphasis

added] and that "[o]nce calculated, the wheel track 150, 152 can be compared...to a desired range for wheel track." (page 8, lns. 3-4).

Since January uses **angles**, <u>not</u> lengths of wheel tracks to determine an alignment status, January does not teach "determining an alignment status by comparing the length of the calculated front wheel track to a specified range for the front wheel track and comparing the length of the calculated rear wheel track to a specified range for the rear wheel track," as required by claim 4. Therefore, January cannot support a prima facie case of obviousness. The obviousness rejection is hence untenable and should be withdrawn. Claim 20 contains limitations comparable to those of claim 4. Accordingly, the obviousness rejection of claim 20 is also untenable and should be withdrawn based on the same reasons discussed in claim 4 as well as on its own merits. Favorable consideration of the claims is respectfully requested.

(2)   <u>Claims 6 and 22 are Patentable over January</u>

Claim 6, as amended, recites "determining an alignment status by comparing the length of the right wheel base to a specified range for the right wheel base and comparing the length the left wheel base to a specified range for the left wheel base." As discussed above, January describes that a "wheelbase difference angle is determined as the angle in the reference plane 80 between line segments 103 and 104." (col. 16, lns. 40-42). Thus, January uses **angles**, <u>not</u> lengths of wheelbases to determine an alignment status. January does not teach "determining an alignment status by comparing the length of the right wheel base to a specified range for the right wheel base and comparing the length the left wheel base to a specified range for the left wheel base," as required by claim 6.

In addition, claim 6 defines the right wheelbase and the left wheel base as "the distance of a line passing adjacent a first right wheel and perpendicularly from the wheel track passing through the first right wheel to the wheel track passing through a second right wheel" and "the

distance of a line passing adjacent a first left wheel and perpendicularly from the wheel track passing through the first left wheel to the wheel track passing through a second left wheel," respectively. The Office Action contended that January teaches the same features by indicating that "the...wheelbase measurements are defined as in conventional alignment systems." Applicants respectfully disagree.

According to January, the wheelbase "is determined as the distance, in a direction parallel to the centerline 96, between the left wheel positions 84 and 86, respectively." (col. 16, lns. 46-50). Nowhere does January describes that the left/right wheelbase as the distance of a line passing adjacent a first left/right wheel and perpendicularly from the wheel track passing through the first left/right wheel to the wheel track passing through a second left/right wheel, as required by claim 6.

Since January fails to teach every limitation of the claim, January cannot support a prima facie case of obviousness. The obviousness rejection is hence untenable and should be withdrawn. Claim 22 contains limitations comparable to those of claim 6. Accordingly, the obviousness rejection of claim 22 is also untenable and should be withdrawn based on the same reasons discussed in claim 6 as well as on its own merits. Favorable consideration of the claims is respectfully requested.

(3)   Claims 8 and 24 are Patentable over January

Claim 8, as amended, recites "determining an alignment status by comparing the length of the right wheel base to a specified range for the right wheel base and comparing the length of the left wheel base to a specified range for the left wheel base." As discussed in claims 6 and 22, January uses **angles**, not lengths of wheelbases to determine an alignment status. Thus, January fails to disclose "determining an alignment status by comparing the length of the right wheel

base to a specified range for the right wheel base and comparing the length of the left wheel base to a specified range for the left wheel base," as required by claim 8.

Since January fails to teach every limitation of the claim, January cannot support a prima facie case of obviousness. The obviousness rejection is hence untenable and should be withdrawn. Claim 24 contains limitations comparable to those of claim 6. Accordingly, the obviousness rejection of claim 42 is also untenable and should be withdrawn based on the same reasons discussed in claim 8 as well as on its own merits. Favorable consideration of the claims is respectfully requested.

(4)   Claims 14, 27 and 30 are Patentable over January

Claims 14, 27 and 30 were rejected as being unpatentable over January. Claim 14, as amended, recites:

> A method of determining alignment between the wheels of a vehicle...comprising the steps of:
> ...
> calculating a first diagonal, the first diagonal being defined between the locations of the right, front wheel and the left, rear wheel;
> calculating a second diagonal, the second diagonal being defined between the locations of left, front wheel and the right, rear wheel;
> calculating a first skew angle, the first skew angle being defined as the angle between the first diagonal and one of the wheel tracks;
> calculating a second skew angle, the second skew angle being defined as the angle between the second diagonal and the other of the wheel tracks; and
> determining an alignment status based on the first skew angle and the second skew angle.

The Office Action admitted that January does not teach calculating the first and second diagonals, and calculating skew angles between the diagonals and the wheel tracks as claimed. Despite these deficiencies, the Office Action rejected claim 14 by asserting that January teaches locating the coordinates 84-87 of the wheels, and that drawing diagonals between points of known coordinates would have been obvious in geometry, and that determining the skew angle

between the diagonals with other lines joining the four known points in a plane using an angular measurement device would have been obvious. The Office Action then concluded that a combination of these features teaches every limitation of the claim.

It is respectfully submitted that the Examiner had not discharged her duty in establishing a prima facie case of obviousness under 35 U.S.C. 103(a). The Office Action did not provide any evidence supporting the assertion that it is well known to determine an alignment status based on skew angles obtained by calculating diagonals. If the Examiner believes that the features are well known, it is respectfully requested that evidence be produced to support such assertion. Otherwise, the Examiner should allow the claim to issue.

Furthermore, the Office Action failed to provide objective evidence to show sufficient motivations exist to combine the references. In order to establish a prima facie case of obviousness based on more than one reference, there must be some suggestion or motivation in the references themselves to modify the reference or to combine reference teachings. The teaching or suggestion to make the modification or combination of prior art and the reasonable expectation of success must both be found in the prior art, and not based on Applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). The teachings, motivations or suggestions to combine references must be based on **objective evidence of record** and cannot be resolved on subjective belief and unknown authority. *In re Lee*, 277 F.3d 1338, 61 USPQ2d 1430 (Fed. Cir. 2002). By failing to provide objective evidence to show that sufficient motivations exist to combine the references, the Examiner did not discharge her duty to establish a prima facie case of obviousness. Therefore, the obviousness rejection is untenable and should be withdrawn. Favorable consideration of the claim is respectfully requested.

Claim 27, as amended, recites: "a vision imaging system...for determining an alignment status based on a first diagonal and a second diagonal; wherein the first

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diagonal is defined between the locations of the right, front wheel and the left, rear wheel and the second diagonal is defined between the locations of left, front wheel and the right, rear wheel." Claim 30 depends on claim 27, and further requires that "the vision imaging system calculates a first skew angle and a second skew angle with the first skew angle being defined as the angle between the first diagonal and one of the wheel tracks and the second skew angle being defined as the angle between the second diagonal and the other of the wheel tracks."

As discussed in claim 14, the Office Action fails to provide objective evidence to show that various features described in the claims are well known to people skilled in the art, and that there are sufficient motivations to combine various features described in the claims to determine an alignment status of the vehicle. Since Office Action did not provide sufficient evidence to establish a prima facie case of obviousness, the obviousness rejection is untenable and should be withdrawn. Favorable consideration of the claims is respectfully requested.

THE OBJECTION OF CLAIMS 15, 16, 28, 29, 31 AND 32 IS ADDRESSED

Claims 15, 16, 28, 29, 31 and 32 were objected to for depending from a rejected base claim, but would be allowable if rewritten in independent form. Claims 15 and 16 depend on claim 14, claims 28, 29, 31 and 32 depend on claim 27, directly or indirectly, and include every limitation thereof.

As discussed earlier, claims 14 and 27 are patentable over the cited reference. Thus, claims 15, 16, 28, 29, 31 and 32 are also patentable over the cited reference based on the same reasons discussed in either claim 14 or claim 27, as well as on their own merits. Favorable consideration of the claims is respectfully requested.

CONCLUSION

Therefore, the present application claims subject matter patentable over the references of record and is in condition for allowance. Favorable consideration is respectfully requested. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, Examiner is requested to call Applicants' attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

MCDERMOTT, WILL & EMERY

Wei-Chen Chen,

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Recognition under 37 CFR §10.9(b)

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MARK-UP VERSION SHOWING CHANGES MADE

Please amend the claims as follows:

4. (Twice Amended) A method of determining alignment between the wheels of a vehicle using a position determination system that indicates wheel positions on the vehicle with targets, the method comprising the steps of:

[indicating wheel positions on the vehicle with targets;]

imaging the targets to obtain locations of the wheel positions;

calculating a front wheel track, the front wheel track being defined between the locations of the two front wheels;

calculating a rear wheel track, the rear wheel track being defined between the locations of the two rear wheels; and

determining an alignment status by comparing the length of the calculated front wheel track to a specified range for the front wheel track and comparing the length of the calculated rear wheel track to a specified range for the rear wheel track.

6. (Twice Amended) A method of determining alignment between the wheels of a vehicle using a position determination system that indicates wheel positions on the vehicle with targets, the method comprising the steps of:

[indicating wheel positions on the vehicle with targets;]

imaging the targets to obtain locations of the wheel positions;

[calculating a front wheel track, the front wheel track being defined between the locations of the two front wheels;

calculating a rear wheel track, the rear wheel track being defined between the locations of the two rear wheels;]

calculating the length a right wheel base, the right wheel base being defined as the distance of a line passing adjacent a first right wheel and perpendicularly from the wheel track passing through the first right wheel to the wheel track passing through a second right wheel;

calculating the length of a left wheel base, the left wheel base being defined as the distance of a line passing adjacent a first left wheel and perpendicularly from the wheel track passing through the first left wheel to the wheel track passing through a second left wheel; and

determining an alignment status by comparing the length of the [calculated] right wheel base to a specified range for the right wheel base and comparing the length of the [calculated] left wheel base to a specified range for the left wheel base.

8. (Twice Amended) A method of determining alignment between the wheels of a vehicle using a position determination system that indicates wheel positions on the vehicle with targets, the method comprising the steps of:

[indicating wheel positions on the vehicle with targets;]

imaging the targets to obtain locations of the wheel positions;

calculating the length of a right wheel base, the right wheel base being defined between the locations of the two right wheels;

calculating the length of a left wheel base, the left wheel base being defined between the locations of the two left wheels; and

determining an alignment status by comparing the length of the [calculated] right wheel base to a specified range for the right wheel base and comparing the length of the [calculated] left wheel base to a specified range for the left wheel base.

12. (Twice Amended) [The method according to claim 11, wherein the step of calculating the relationship between the front and rear wheels includes] A method of determining alignment between the wheels of a vehicle using a position determination system that indicates wheel positions on the vehicle with targets, the method comprising the steps of:

imaging the targets to obtain locations of the wheel positions;

calculating a first diagonal, the first diagonal being defined between the locations of the right, front wheel and the left, rear wheel;

calculating a second diagonal, the second diagonal being defined between the locations of left, front wheel and the right, rear wheel;

calculating a difference between the first diagonal and the second diagonal; and

[comparing] determining an alignment status based on the calculated difference between the first diagonal and the second diagonal [to a specified range for the difference between the first diagonal and the second diagonal].

13. (Once Amended) [The method according to claim 11,] A method of determining alignment between the wheels of a vehicle using a position determination system that indicates wheel positions on the vehicle with targets, the method comprising the steps of:

imaging the targets to obtain locations of the wheel positions;

calculating a first diagonal, the first diagonal being defined between the locations of the right, front wheel and the left, rear wheel;

calculating a second diagonal, the second diagonal being defined between the locations of left, front wheel and the right, rear wheel; and

[wherein the step of calculating the relationship between the front and rear wheels includes] determining an alignment status by comparing the calculated first diagonal to a

specified range for the first diagonal and comparing the calculated second diagonal to a specified range for the second diagonal.

14. (Once Amended) [The method according to claim 11, further comprising the steps of:] A method of determining alignment between the wheels of a vehicle using a position determination system that indicates wheel positions on the vehicle with targets, the method comprising the steps of:

imaging the targets to obtain locations of the wheel positions;

calculating a first diagonal, the first diagonal being defined between the locations of the right, front wheel and the left, rear wheel;

calculating a second diagonal, the second diagonal being defined between the locations of left, front wheel and the right, rear wheel;

calculating a first skew angle, the first skew angle being defined as the angle between the first diagonal and one of the wheel tracks; [and]

calculating a second skew angle, the second skew angle being defined as the angle between the second diagonal and the other of the wheel tracks; and

determining an alignment status based on the first skew angle and the second skew angle.

15. (Twice Amended) The method according to claim 14, wherein the step of [calculating the relationship between the front and rear wheels] determining an alignment status includes calculating a difference between the first skew angle and the second skew angle and comparing the calculated difference between the first skew angle and the second skew angle to a specified range for the difference between the first skew angle and the second skew angle.

16. (Once Amended) The method according to claim 14, wherein the step of [calculating the relationship between the front and rear wheels] determining an alignment status includes

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comparing the calculated first skew angle to a specified range for the first skew angle and comparing the calculated second skew angle to a specified range for the second skew angle.

20. (Twice Amended) A computer-implemented position determination system for determining alignment between the wheels of a vehicle, comprising:

one or more targets for indicating wheels positions on the vehicle; and

a vision imaging system for imaging the targets to obtain locations of the wheel positions and for calculating a relationship between the front and rear wheels of the vehicle;

wherein the vision imaging system calculates a front wheel track and a rear wheel track with the front wheel track being defined between the locations of the two front wheels and the rear wheel track being defined between the locations of the two rear wheels; and

wherein the calculation of the relationship between the front and rear wheels includes comparing the length of the calculated front wheel track to a specified range for the front wheel track and comparing the length of the calculated rear wheel track to a specified range for the rear wheel track.

22. (Twice Amended) A computer-implemented position determination system for determining alignment between the wheels of a vehicle, comprising:

one or more targets for indicating wheels positions on the vehicle; and

a vision imaging system for imaging the targets to obtain locations of the wheel positions and for determining an alignment status [calculating a relationship between the front and rear wheels of the vehicle];

[wherein the vision imaging system calculates a front wheel track and a rear wheel track with the front wheel track being defined between the locations of the two front wheels and the rear wheel track being defined between the locations of the two rear wheels;]

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wherein the vision imaging system calculates the length of a right wheel base and the length of a left wheel base with the right wheel base being defined as the distance of a line passing adjacent a first of the right wheels and perpendicularly from the wheel track passing through the first right wheel to the wheel track passing through a second of the right wheels and the left wheel base being defined as the distance of a line passing adjacent a first of the left wheels and perpendicularly from the wheel track passing through the first left wheel to the wheel track passing through a second of the left wheels; and

wherein [the calculation of the relationship between the front and rear wheels includes] the vision imaging system determines the alignment status by comparing the length of the [calculated] right wheel base to a specified range for the right wheel base and comparing the length of the [calculated] left wheel base to a specified range for the left wheel base.

24. (Twice Amended) A computer-implemented position determination system for determining alignment between the wheels of a vehicle, comprising:

one or more targets for indicating wheels positions on the vehicle; and

a vision imaging system for imaging the targets to obtain locations of the wheel positions and for [calculating a relationship between the front and rear wheels of the vehicle] determining an alignment status;

wherein the vision imaging system calculates the length of a right wheel base and the length of a left wheel base with the right wheel base being defined between the locations of the two right wheels and the left wheel base being defined between the locations of the two left wheels; and

wherein the vision imaging system determines the alignment status by [the calculation of the relationship between the front and rear wheels includes] comparing the length of the

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[calculated] right wheel base to a specified range for the right wheel base and comparing the length of the [calculated] left wheel base to a specified range for the left wheel base.

27. (Twice Amended) A computer-implemented position determination system for determining alignment between the wheels of a vehicle, comprising:

one or more targets for indicating wheels positions on the vehicle; and

a vision imaging system for imaging the targets to obtain locations of the wheel positions and for [calculating a relationship between the front and rear wheels of the vehicle; and] determining an alignment status based on a first diagonal and a second diagonal;

wherein [the vision imaging system calculates a first diagonal and a second diagonal with] the first diagonal [being] is defined between the locations of the right, front wheel and the left, rear wheel and the second diagonal [being] is defined between the locations of left, front wheel and the right, rear wheel.

28. (Twice Amended) The system according to claim 27, wherein the vision imaging system determines the alignment status by [calculation of the relationship between the front and rear wheels includes] calculating a difference between the first diagonal and the second diagonal and comparing the calculated difference between the first diagonal and the second diagonal to a specified range for the difference between the first diagonal and the second diagonal.

29. (Once Amended) The system according to claim 27, wherein the vision imaging system determines the alignment status by [the calculation of the relationship between the front and rear wheels includes] comparing the [calculated] first diagonal to a specified range for the first diagonal and comparing the [calculated] second diagonal to a specified range for the second diagonal.

31. (Twice Amended) The system according to claim 30, wherein <u>the vision imaging system determines the alignment status by</u> [the calculation of the relationship between the front and rear wheels includes] calculating a difference between the first skew angle and the second skew angle and comparing the calculated difference between the first skew angle and the second skew angle to a specified range for the difference between the first skew angle and the second skew angle.

32. (Once Amended) The system according to claim 30, wherein [the calculation of the relationship between the front and rear wheels includes] <u>the vision imaging system determines the alignment status by</u> comparing the calculated first skew angle to a specified range for the first skew angle and comparing the calculated second skew angle to a specified range for the second skew angle.

BEFORE THE OFFICE OF ENROLLMENT AND DISCIPLINE
UNITED STATE PATENT AND TRADEMARK OFFICE

LIMITED RECOGNITION UNDER 37 CFR □ 10.9(b)

Wei-Chen Chen is hereby given limited recognition under 37 CFR § 10.9(b) as an employee of McDermott, Will & Emery to prepare and prosecute patent applications wherein the patent applicant is the client of McDermott, Will & Emery, and the attorney or agent of record in the applications is a registered practitioner who is a member of McDermott, Will & Emery. This limited recognition shall expire on the date appearing below, or when whichever of the following events first occurs prior to the date appearing below: (i) Wei-Chen Chen ceases to lawfully reside in the United States, (ii) Wei-Chen Chen□s employment with McDermott, Will & Emery ceases or is terminated, or (iii) Wei-Chen Chen ceases to remain or reside in the United States on an H-1 visa.

This document constitutes proof of such recognition. The original of this document is on file in the Office of Enrollment and Discipline of the U.S. Patent and Trademark Office.

Expires: June 24, 2003
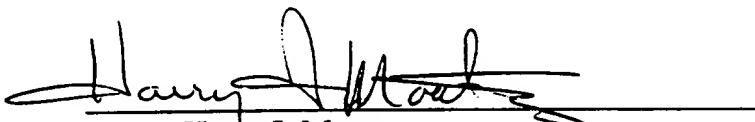
Harry I. Moatz
Director of Enrollment and Discipline